

Claims

1. A structure for securing an insert to an insert drill, the insert drill comprising: a holder comprising a mounting slot formed on an end of the holder,
5 a shank hole downward extending in the holder from a bottom wall of the mounting slot, a first bolt hole formed on a predetermined portion of an outer surface of the holder so as to extend to the shank hole; the insert inserted into the mounting slot of the holder, and comprising a shank part formed on a lower end of the insert and inserted into the shank hole of the holder, with an inclined
10 groove formed on a predetermined portion of an outer surface of the shank part; and a tie bolt tightened into the first bolt hole of the holder, with an inside end of the tie bolt projected into the shank hole of the holder through the first bolt hole, so that the inside end of the tie bolt is in contact with the inclined groove of the shank part of the insert so as to hold the insert while the shank part of the insert is
15 inserted into the shank hole of the holder, the structure for securing the insert to the insert drill comprising:

a second bolt hole formed on a predetermined portion of the outer surface of the holder so as to extend to the mounting slot;

a guide groove longitudinally formed on an engaging surface of the

insert; and

a guide bolt tightened into the second bolt hole of the holder, with an inside end of the guide bolt projected into the mounting slot of the holder through the second bolt hole, so that the inside end of the guide bolt is received into the guide groove of the insert through a lower end of the guide groove when the insert
5 is inserted into the mounting slot of the holder, thus guiding the guide groove of the insert.

2. The structure according to claim 1, wherein, when the insert is inserted into the mounting slot of the holder while being arranged along an X-axis of the
10 holder, the guide groove formed on the engaging surface of the insert is directed toward a fourth quadrant of the holder, and the guide bolt is arranged in the fourth quadrant of the holder while being directed toward a rotating axis of the holder, so that the inside end of the guide bolt is received into the guide groove of the insert.

15 3. The structure according to claim 1, wherein the guide groove and the guide bolt are arranged to be diametrically opposite to the inclined groove of the shank part of the insert which engages with the inside end of the tie bolt.

4. A structure for securing an insert to an insert drill, the insert drill comprising: a holder comprising a mounting slot formed on an end of the holder, a shank hole downward extending in the holder from a bottom wall of the mounting slot, a first bolt hole formed on a predetermined portion of an outer surface of the holder so as to extend to the shank hole; the insert inserted into the mounting slot of the holder, and comprising a shank part formed on a lower end of the insert and inserted into the shank hole of the holder, with an inclined groove formed on a predetermined portion of an outer surface of the shank part; and a tie bolt tightened into the first bolt hole of the holder, with an inside end of the tie bolt projected into the shank hole of the holder through the first bolt hole, so that the inside end of the tie bolt is in contact with the inclined groove of the shank part of the insert so as to hold the insert while the shank part of the insert is inserted into the shank hole of the holder, the structure for securing the insert to the insert drill comprising:

a guide groove longitudinally formed on an engaging surface of the insert;

and

a guide projection integrally formed on a predetermined portion of an inside surface of the mounting slot of the holder, so that the guide projection is

received into the guide groove of the insert through a lower end of the guide groove when the insert is inserted into the mounting slot of the holder, thus guiding the guide groove of the insert.

5 5. A structure for securing an insert to an insert drill, the insert drill comprising: a holder comprising a mounting slot formed on an end of the holder, a shank hole downward extending in the holder from a bottom wall of the mounting slot, a first bolt hole formed on a predetermined portion of an outer surface of the holder so as to extend to the shank hole; the insert inserted into the mounting slot of the holder, and comprising a shank part formed on a lower end
10 of the insert and inserted into the shank hole of the holder, with an inclined groove formed on a predetermined portion of an outer surface of the shank part; and a tie bolt tightened into the first bolt hole of the holder, with an inside end of the tie bolt projected into the shank hole of the holder through the first bolt hole, so that the inside end of the tie bolt is in contact with the inclined groove of the
15 shank part of the insert so as to hold the insert while the shank part of the insert is inserted into the shank hole of the holder, the structure for securing the insert to the insert drill comprising:

a guide groove longitudinally formed on an engaging surface of the

insert;

a key hole formed on a predetermined portion of the outer surface of the holder so as to extend to the mounting slot; and

a guide key inserted into the key hole of the holder, with an inside end of
5 the guide key projected into the mounting slot of the holder through the key hole,
so that the inside end of the guide key is received into the guide groove of the
insert through a lower end of the guide groove when the insert is inserted into the
mounting slot of the holder, thus guiding the guide groove of the insert.

6. A structure for securing an insert to an insert drill, the insert drill
10 comprising: a holder comprising a mounting slot formed on an end of the holder, a
shank hole downward extending in the holder from a bottom wall of the mounting
slot, a first bolt hole formed on a predetermined portion of an outer surface of the
holder so as to extend to the shank hole; the insert inserted into the mounting slot
of the holder, and comprising a shank part formed on a lower end of the insert and
15 inserted into the shank hole of the holder, with an inclined groove formed on a
predetermined portion of an outer surface of the shank part; and a tie bolt tightened
into the first bolt hole of the holder, with an inside end of the tie bolt projected into
the shank hole of the holder through the first bolt hole, so that the inside end of the

tie bolt is in contact with the inclined groove of the shank part of the insert so as to hold the insert while the shank part of the insert is inserted into the shank hole of the holder, the structure for securing the insert to the insert drill comprising:

5 a recessed part provided at a lower edge of an engaging surface of the insert; and

 a step provided on a lower end of a sidewall of the mounting slot of the holder to correspond to the recessed part of the insert, so that the recessed part of the insert is fitted over the step of the mounting slot when the insert is inserted into the mounting slot of the holder, thus arranging the insert in the mounting slot of
10 the holder.

7. A structure for securing an insert to an insert drill, the insert drill comprising: a holder comprising a mounting slot formed on an end of the holder, a shank hole downward extending in the holder from a bottom wall of the mounting
15 slot, a first bolt hole formed on a predetermined portion of an outer surface of the holder so as to extend to the shank hole; the insert inserted into the mounting slot of the holder, and comprising a shank part formed on a lower end of the insert and inserted into the shank hole of the holder, with an inclined groove formed on a predetermined portion of an outer surface of the shank part; and a tie bolt tightened

into the first bolt hole of the holder, with an inside end of the tie bolt projected into the shank hole of the holder through the first bolt hole, so that the inside end of the tie bolt is in contact with the inclined groove of the shank part of the insert so as to hold the insert while the shank part of the insert is inserted into the shank hole of the holder, the structure for securing the insert to the insert drill comprising:

a locking groove provided at a predetermined position of a lower edge of an engaging surface of the insert; and

a locking projection provided on a predetermined position of a lower end of a sidewall of the mounting slot of the holder to correspond to the locking groove of the insert, so that the locking groove of the insert engages with the locking projection of the mounting slot when the insert is inserted into the mounting slot of the holder, thus arranging the insert in the mounting slot of the holder.

8. The structure according to claim 7, wherein the locking groove of the insert and the locking projection of the mounting slot comprise a plurality of locking grooves and a plurality of locking projections, respectively.